AMENDMENTS TO THE SPECIFICATION:

Please replace the paragraph beginning on page 1, line 1, with the following paragraph:

CROSS-REFERENCES TO RELATED APPLICATIONS

~~Not Applicable.~~ This application is a Continuation of U.S. Patent Application No.08/828,484, March 31, 1997.

Please replace the paragraph beginning on page 3, line 1, with the following paragraph:

By way of further background, one technique for permitting internetwork communication using IP involves the use of so-called routers. A router is a computer which is physically connected to two different networks, and which may receive an information packet from a source host computer on one network and communicate it to a destination host computer on the other network. Note, however, that the use of a router also involves various complexities. This process is performed using subnetting as is known in the art. For example, to use the functionality of the router, each host computer on each network is particularly configured at the IP level to communicate with the IP level of the router when internetwork communication is desired. In other words, if a host computer intends to communicate an internetwork information packet to a destination host computer, then the host computer forms the information packet to include the IP information of the destination host computer and further encapsulates this information with the IP information of the router. Next, when the router receives the encapsulated packet, it recognizes from the multiple levels of IP information that the packet is ultimately intended for a destination host computer on another network. Thus, the router is required to take still additional action at the IP level. For example, the router strips the outer IP information from the packet, thereby leaving the IP information pertaining to the destination host computer. Note, however, that

this stripping action changes the checksum or other appropriate verification information included with the information packet. Thus, the router is further required to re-calculate the checksum and include the new value with the packet prior to sending that packet on to the destination host computer. In addition to these complexities, note also that because the router functionality is at the IP level of communication, then it is typically required that it be included with an operating systems ~~of computer~~ for that computer to perform the above-discussed functionality. Some operating systems, however, do not include such functionality. Thus, either a more complex and often more expensive operating system is required to provide the router functionality, or the software provider is required to re-write the operating system to extend the IP to further include the router functionality. One skilled in the art will therefore appreciate these as well as various other complexities arising from internetwork communications performed by routers.

Please replace the paragraph beginning on page 10, line 1, with the following paragraph:

At the middle level of the data communication hierarchy shown in Figure 2 is a protocol handler which is commonly embodied in the operating system of the host computer. For example, the Windows 95 operating system currently provided by Microsoft includes the protocol handler shown in Figure 2. Specifically, this protocol handler includes the internet protocol ("IP") and the transport control protocol ("TCP"), each of which also was discussed earlier in the Background of the Invention. Although not shown in Figure 2, but as mentioned in the Background, note that the IP and TCP standards are typically implemented in an ordered level manner such that the TCP protocol is closer to the application level and the IP protocol is closer to the physical network connection level. Due to this ordering, note that a packet of information received from the network is first examined according to the IP standard, and then to the standard overlying the IP standard such as the TCP standard shown in Figure 2. Thus, as an alternative, a standard other than the TCP standard may be used in Figure 2 without departing from the necessary

understanding and implementation of the inventive embodiments discussed in this document. For example, TCP is favorable in cases where it is desired to ensure that a data packet is received by a destination, or where a large block of data is to be broken down into separate packets for purposes of ensuring proper transmission and receipt of the block of data. However, as an alternative, the known user datagram protocol ("UDP") may be used where it is not necessary to confirm that ~~that~~ the intended destination of the data packet actually receives the data packet, or where it is desired to send a data packet to one of more than one application programs running on a single destination host computer. Note also that UDP is sometimes referred to as an extension of TCP rather than an alternative to TCP. In any event, TCP, UDP, or perhaps still additional protocols represent an additional layer of data handling which may operate in conjunction with the IP standard.

Please replace the paragraph beginning on page 15, line 23, with the following paragraph:

Turning to method 20 of Figures 4A and 4B, it <u>begins</u> ~~beings~~ with a step 22 where the link layer protocol receives a data packet from one of either the Ethernet or 1394 networks. Note further that method 20 does not indicate or otherwise affect the operation of the prior art protocols of host computer H4, that is, either the Ethernet TCP/IP or the 1394 TCP/IP. Therefore, while the link layer protocol receives the data packet from one of either the Ethernet or 1394 networks as shown in step 22, either one of the Ethernet TCP/IP or the 1394 TCP/IP will receive it as well, and may respond as is known in the art which is also reviewed in some instances below. In any event, returning to the link layer protocol, after the data packet is received in step 22, method 20 continues to step 24.

Please replace the paragraph beginning on page 22, line 8, with the following paragraph:

Step 42 operates generally in the same manner as step 26 described above, but here with respect to the received IP communication. Thus, step 42 determines whether the IPA of the destination host computer, as identified in the IP communication, matches the IPA of the computer having the link layer protocol (i.e., host computer H4). If a match is found method 20 continues from step 42 to step 30, whereas if a match is not found method 20 continues from step 42 to step 46. Each of these alternative paths is discussed below. Before discussing those alternatives, however, note further that the operation of the NIC also may be implied in step 42 (or step 28) and may indeed render some of the following steps optional. Specifically, note that step 42 is based on an evaluation of information at the level of the link layer0 protocol and, from Figure 3, recall that this is one level higher than the operation of the NIC. Therefore, for the link layer protocol to receive information in order to perform the analysis of step 42 or other steps below, it is necessary that the underlying NIC has allowed that information to pass to the link layer protocol. More specifically, recall that an IP communication will be accompanied by a MAC layer which includes the HPA of the destination host computer. Therefore, if the HPA set forth in the IP communication does not match that of the host computer containing the link layer protocol (i.e., host computer H4 in the example of Figure 3), then the IP communication may be prevented by the NIC of that host computer from reaching the link layer protocol and step 42 will not occur. Conversely, assuming the required information is passed by the NIC so that it may reach the link layer protocol, then the link layer protocol operates to perform step 42 in the fashion described above.

Please replace the paragraph beginning on page 25, line 4, with the following paragraph:

Turning now to step 52, note that it is reached when the link layer protocol has received an IP communication where the source of the IP communication is connected to the Ethernet network but the destination host computer for that communication is connected to the 1394 network (i.e., an internetwork communication). In this case, the link layer protocol

of host computer H4 operates to communicate the IP communication from the Ethernet network to the 1394 network. In addition, note that the link layer protocol changes the destination HPA of the IP communication so that the communication is received by the proper destination host computer. More specifically, note that step 52 is reached when the IPA in the IP communication represents an internetwork communication, but further when the HPA accompanying the IP communication designates the HPA of the computer including the link layer protocol (i.e., host computer H4). For example, assume that host computer H1 is sending an IP communication to host computer H7. Therefore, at some earlier stage, host computer H1 should have issued an address pairing request to IPA7 corresponding to host computer H7. In response to that request, and based on steps 24, 26, 32, 34, and 40, host computer H1 should have created an entry in its IPA table pairing IPA7 with HPA4 (i.e., the HPA indicating the computer having the link layer protocol). Thus, if host computer H4 were to merely forward the IP communication and its accompanying HPA to the 1394 network, then the destination host computer H7 would not respond because its NIC responds to an HPA of HPA7, and not the HPA value of HPA4 accompanying the IP communication. Therefore, in the preferred embodiment, the link layer protocol replaces the HPA in the IP communication with the HPA which corresponds to the destination host computer. Note at this point, therefore, that the link layer protocol creates a match between the IPA and the HPA of the destination host computer. Therefore, once the IP communication and the newly accompanying HPA are communicated to the 1394 network, the link layer (i.e., the NIC) of the destination host computer will properly respond to the communication. Again, therefore, one skilled in the art will thus appreciate the use of the term link layer in connection with the protocol of the present embodiment. Indeed, in this regard, it is further helpful to described the computer (e.g., host computer H4) which includes the link layer protocol as a link layer gateway, that is, a computer which thereby accomplishes the internetwork communication of an appropriate data packet using the link layer-related techniques of the present embodiments. Returning then to the current example, the link layer protocol replaces the value of HPA4 with a value of HPA7 corresponding to host computer H7. Note that the newly used value for the HPA should be available to the link layer protocol so long as host computer H4 earlier performed its own

address pairing request to the destination host computer. In other words, if host computer H4 has earlier sent an address pairing request to host computer H7, then host computer H4 should have an entry in its address pairing table correlating IPA7 with HPA7. Given this information, and returning to the replacement operation by the link layer protocol in step 52, recall that after changing the HPA value as described above, the link layer protocol transmits the IP communication and the new HPA to the 1394 NIC so that it may then pass to the 1394 network. Thereafter, method 20 returns to step 22 so that the link layer protocol may receive and respond to another data packet.

Please replace the paragraph beginning on page 29, line 1, with the following paragraph:

Completing the steps of Figures 4A and 4B, recall that method 20 evaluates in step 24 whether a data packet is an address pairing request, and further evaluates at step 28 whether the data packet is an IP communication. Note further, however, that if the data packet is neither of these two types of communications, method 20 continues to step 44. For example, if the data packet were based on a protocol other than the IP protocol, then ~~than~~ it could reach step 44. Lastly, therefore, step 44 is reserved so that additional steps may be ascertained by one skilled in the art to occur in the instance that neither an address pairing request nor an IP communication is encountered.